TITAN
INFORMATION SYSTEMS

DOCKET FILE COPY ORIGINAL

May 26, 1995

By Hand

EX PARTE OR LATE FILED

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

RECEIVED
MAY 26 1995
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

92

RE: Ex parte Presentation, CC Docket No. 92-297

Dear Mr. Caton:

On May 23 and 24, 1995, representatives of Titan Information Systems ("Titan"), including the undersigned, met with Commission officials to discuss the licensing of LMDS in the 28 GHz band. During some of these meetings, questions were raised about specific technical issues. As a follow-up to those meetings, enclosed is an analysis responding to those questions.

An original and two (2) copies of this letter, and the accompanying analysis, are enclosed. Please contact the undersigned with any questions.

Sincerely,

Frederick L. Judge
President & CEO
Titan Information Systems

Enclosures

cc: Chairman Reed E. Hundt
Rudolfo M. Baca
Lisa B. Smith
Jill Luckett
Mary P. McManus
Donald H. Gips
Gregory Rosston
Scott Blake Harris
Fern Jarmulnek
Donna L. Bethea
Michael J. Marcus
Laurence Atlas
Susan E. Magnotti

No. of Copies rec'd 0+2
List A B C D E

3033 SCIENCE PARK ROAD • SAN DIEGO, CALIFORNIA 92121-1199
(619) 552-9500 • FAX (619) 552-9403

1. WHY IS THE LMDS 20 MHZ CHANNEL SPACING IMPORTANT ? WHY NOT UTILIZE A SMALLER SPACING TO REDUCE THE LMDS BANDWIDTH REQUIREMENT ?

Deviating from the 20 MHz channel spacing, which has become an international standard in satellite as well as terrestrial systems, would deprive LMDS operators of the ability to buy set-top terminals compatible with a large, economically efficient world market. Creating a specialized channel spacing for LMDS would make the set-tops more expensive -- perhaps double the cost due to smaller demand and production. The higher cost of specialized set-tops, which must be amortized with the monthly subscription cost of LMDS, would threaten the business case for LMDS and deprive the consumer of a competitive, viable alternative to cable.

Reducing the 20 MHz spacing also has a direct impact on the video transfer function in the receiver/demodulator. Effectively, the Video SNR, which is directly related to picture quality, is affected by 10*log (channel bandwidth). So, if, for example, 10*log (18 MHz) is used instead of 10*log (20 MHz), the video SNR drops at a given range from the transmitter, so the effective radius of the cell is reduced since the cell radius is defined by a minimum acceptable video SNR and corresponding carrier-to-noise ratio. Accordingly, reducing channel spacing reduces cell size, requires more cells to serve a given area and threatens the economic viability of LMDS.

2. WHY DOES LMDS NEED 1 GHZ OF CONTIGUOUS SPECTRUM ?

To be competitive, LMDS systems require 1 GHz of contiguous spectrum because the competitor of LMDS, cable, has an equivalent of 1 GHz bandwidth deliverable to the subscriber. Without 1 GHz, LMDS cannot achieve service parity and it may never

emerge as a cost-attractive alternative for consumers. It is not the number of channels that counts -- it is the bandwidth that counts. Bandwidth is the simple commodity with which an evolving mix of services can be provided. The mix of analog video, digital video and interactive telephony and data services in the 1 GHz LMDS or cable bandwidth will change over time, but if LMDS cannot match cable's bandwidth it will be threatened. With less than 1 GHz, LMDS cannot compete with cable, and the consumer will lose.

Interactive or two-way service demands in part drive the need for 1 GHz bandwidth. As the demand for new services grows, cable plans to maintain analog service, add digital video service up to about 750 MHz, and use the "cable spectrum" from about 850 MHz to 1 GHz to provide interactive and upstream data and voice services. Cable admits they need 1 GHz to do this as a practical matter -- and so does LMDS. Cable also admits that given its 1 GHz bandwidth it will have a key competitive advantage over alternatives like LMDS if LMDS has less than 1 GHz of contiguous bandwidth. The ability of LMDS to compete will be threatened if LMDS is denied the "critical 150 MHz" that is the difference between a 850 MHz allocation and a full, competitive 1 GHz allocation.

Fifty channels is not an arbitrary number. It is based on the capacity of the current commercially licensed LMDS system (CellularVision of New York, 1 GHz), available commercial technology (20 MHz channel spacing for set-top terminals) and competitive viability. If cable eventually goes to digital to offer 150 channels plus interactive services over 1 GHz, as is now in planning and development, competitive viability will change. In response, LMDS will have to react by providing "like" service over the same 1 GHz

bandwidth at lower cost, or it will cease to be competitive and will decline as a choice for the consumer.

Fifty channels of video is the minimum required to position LMDS as the low cost high quality alternative to cable. Since each LMDS channel requires 20 MHz, it is necessary for LMDS to have 1 GHz of bandwidth to offer 50 channels. With an allocation of anything less than 1 GHz, LMDS will have extreme difficulty competing in today's marketplace. If allocated sufficient spectrum, LMDS can meet the need for a truly competitive alternative to cable, unlike MMDS, which has suffered from a lack of programming capacity since its inception and has never become a viable competitor to cable.

The number of programming services is continually increasing. At the present time there are over 20 premium (ala carte) services and over 60 satellite programming services that are perceived as having some level of value to consumers. Approximately 30 of the satellite services and 8 of the premium services are considered vital to the success of a metropolitan cable system. In addition there are as many as 18 over the air channels plus dedicated Pay Per View channels and others in a typical metropolitan cable system. The cable industry has marketed their product on a "more is better" strategy from its inception.

Thus, in order to offer consumers an acceptable choice of programming, LMDS service providers need at least 50 channels to compete against cable's quantity strategy. If LMDS is perceived by the consumer as having an insufficient number of program offerings, it will not be accepted as an alternative to cable.

TITAN
INFORMATION SYSTEMS

May 25, 1995

By Facsimile
Phone 202/418-2000
Fax 202-418-2802

Mr. Rudolfo M. Baca
Legal Advisor to Commissioner James Quello
Federal Communications Commission
1919 M Street, NW, Room 802
Washington, DC 20554

Dear Mr. Baca:

As you requested in our meeting yesterday, I am writing to respond to the question as to which of the two leading proposals Titan supports in the LMDS Rulemaking, namely, option one: two non-contiguous 500 MHz blocks for LMDS, one primary and one co-primary with MSS, and option two: a contiguous 850 MHz block for LMDS on a primary basis at 27.5 to 28.35 GHz, with an additional 150 MHz in the 29.1 - 29.25 block on a co-primary basis with MSS.

After carefully reviewing these options, Titan's strong preference would be for 850 MHz of contiguous spectrum being allocated to LMDS in the 27.5 - 28.35 band. While this alternative includes 150 MHz of spectrum that would be allocated on a co-primary basis for MSS and LMDS in the 29.1 - 29.25 band, we must candidly state that that spectrum does little to promote the deployment of LMDS technology in a robust fashion throughout the United States. Accordingly, we would urge that an additional 150 MHz of spectrum at 28.35 - 28.5, immediately adjacent to the 850 MHz proposed for primary allocation to LMDS, be designated co-primary for LMDS and LEO.

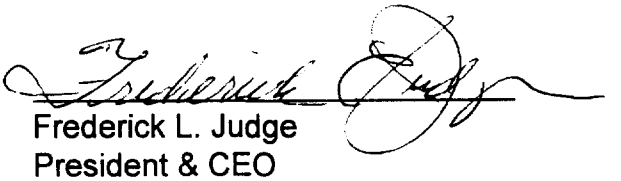
Accordingly, we strongly urge the Commission to embrace a licensing scheme for LMDS in the 28 GHz spectrum which provides for 850 MHz of spectrum allocated on a primary basis to LMDS from 27.5 - 28.35 GHz with a contiguous additional 150 MHz of spectrum allocated on a co-primary basis for LMDS and LEO. This additional 150 MHz of contiguous spectrum would also be subject to auctioning and could be aggregated with the adjacent 850 MHz of spectrum for LMDS. We believe that this approach will best serve the interest of the public throughout the United States as it will immediately provide for the vigorous nationwide deployment of LMDS through auctioning.

3033 SCIENCE PARK ROAD • SAN DIEGO, CALIFORNIA 92121-1199
(619) 552-9500 • FAX (619) 552-9403

In addition to insuring a spectral efficient use of the valuable 28 GHz spectrum, this plan also would provide a total of 1,650 MHz of spectrum on a primary or co-primary basis for the various satellite interests, thus insuring that these services could also move forward immediately with adequate spectrum.

We appreciated the opportunity to meet with you and to discuss the important promise that LMDS represents to companies like Titan who are seeking to play a leadership role in deploying this new competitive technology at home and abroad.

Sincerely,



Frederick L. Judge
President & CEO
Titan Information Systems

TITAN
INFORMATION SYSTEMS

May 25, 1995

By Facsimile
Phone 202-418-2044
Fax 202-418-2807

Mr. Gregory Rosston
Office of Plans and Policy
Federal Communications Commission
Room 822
1919 M Street, NW
Washington, DC 20554

Dear Mr. Rosston:

As requested by Chairman Hundt in our meeting yesterday with you, the Chairman and Mr. Gips, I am writing to respond to the question as to which of the two leading proposals Titan supports in the LMDS Rulemaking, namely, option one: two non-contiguous 500 MHz blocks for LMDS, one primary and one co-primary with MSS, and option two: a contiguous 850 MHz block for LMDS on a primary basis at 27.5 to 28.35 GHz, with an additional 150 MHz in the 29.1 - 29.25 block on a co-primary basis with MSS.

After carefully reviewing these options, Titan's strong preference would be for 850 MHz of contiguous spectrum being allocated to LMDS in the 27.5 - 28.35 band. While this alternative includes 150 MHz of spectrum that would be allocated on a co-primary basis for MSS and LMDS in the 29.1 - 29.25 band, we must candidly state that that spectrum does little to promote the deployment of LMDS technology in a robust fashion throughout the United States. Accordingly, we would urge that an additional 150 MHz of spectrum at 28.35 - 28.5, immediately adjacent to the 850 MHz proposed for primary allocation to LMDS, be designed co-primary for LMDS and LEO.

Accordingly, we strongly urge the Commission to embrace a licensing scheme for LMDS in the 28 GHz spectrum which provides for 850 MHz of spectrum allocated on a primary basis to LMDS from 27.5 - 28.35 GHz with a contiguous additional 150 MHz of spectrum allocated on a co-primary basis for LMDS and LEO. This additional 150 MHz of contiguous spectrum would also be subject to auctioning and could be aggregated with the adjacent 850 MHz of spectrum for LMDS. We believe that this approach will best serve the interest of the public throughout the United States as it will immediately provide for the vigorous nationwide deployment of LMDS through auctioning.

3033 SCIENCE PARK ROAD • SAN DIEGO, CALIFORNIA 92121-1199
(619) 552-9500 • FAX (619) 552-9403

In addition to insuring a spectral efficient use of the valuable 28 GHz spectrum, this plan also would provide a total of 1,650 MHz of spectrum on a primary or co-primary basis for the various satellite interests, thus insuring that these services could also move forward immediately with adequate spectrum.

We appreciated the opportunity to meet with you and to discuss the important promise that LMDS represents to companies like Titan who are seeking to play a leadership role in deploying this new competitive technology at home and abroad.

Sincerely,

Frederick L. Judge
President & CEO
Titan Information Systems